

Prized Challenge 1

Problem statement:

Build a device to control the user interface of a Windows system using different sensors with ESP8266

Constraints:

- The device should communicate wirelessly with the computer
- You can use any sensor of your choice. However, I recommend using 2 Ultrasonic sensors to implement various gestures.
- Use Python for firmware as well as the software for controlling features on Windows

Resources required:

- Dev board and sensors
- Python modules:
 - PyAutoGUI
 - Networking modules: urequests, paho-mqtt, etc.

Prized Challenge 2

Problem Statement:

Build a network of 3 devices with the following features:

- Every device has a sensor and an actuator (sensor and actuator can be simulated)
- There is a common dashboard where we can see the sensor reading from the devices. Also, there should be buttons on the dashboard to control actuators on each device.

Constraints:

- The overall system should be wireless
- A dashboard can be on any platform of your choice. However, I recommend Node-RED.

Resources required:

- 3 WiFi-enabled Development boards
- A WiFi router/access point to connect the devices

Prized Challenge 3

Problem Statement:

Build an end-to-end IoT system with the following features:

- A device with actuators and sensors
- Data collection on a cloud platform
- Visualize the data in graphical form in an application running on your local system

Constraints:

- The overall system should be wireless
- The firmware code should be in Python. Visualization application can be on any platform for language.

Resources required:

1 WiFi-enabled Development boards

A WiFi router/access point to connect the devices